Kennecott
10 East South Temple
P.O. Box 11248
Salt Lake City, Utah 84147

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December 13, 1985

Kennecott

Mr. Lowell P. Braxton
Administrator, Mineral Resource Development
and Reclamation Program
Division of Oil, Gas and Mining
Utah Department of Natural Resources
365 West North Temple
Three Triad Center, Suite 350
Salt Lake City, Utah 84180

Dear Mr. Braxton:

Enclosed for your review are three sets of drawings which describe the site grading plans for Kennecott's new grinding plant and private access road to the grinding plant. Each set consists of:

- Drawing #712-C-103: Concentrator Site Rough Grading Plan, Sheet 1.
- Drawing #712-C-104: Concentrator Site Rough Grading Plan, Sheet 3.
- Drawing #712-C-105: Concentrator Site Rough Grading Sections.
- Drawing #740-C-101: Plant Access Road Plan and Profile, Sheet 1.
- Drawing #740-C-102: Plant Access Road Plan and Profile, Sheet 2.
- Drawing #740-C-103: Plant Access Road Plan and Profile, Sheet 3.
- Drawing #740-C-104: Plant Access Road Plan and Profile, Sheet 4.
- Drawing #740-C-105: Plant Access Road Plan and Profile, Sheet 5.

Please contact me if you have any questions regarding these plans or require additional information.

Very truly yours,

A. M. Trbovich

AMT:mf
Enclosures

cc: L. K. Jacobson, w/o enc.
R. A. Malone, w/o enc.
C. K. Vance, w/o enc.

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Kennecott
10 East South Temple
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Robert A. Malone
Director, Environmental Affairs

Kennecott

December 2, 1985

Ms. Diane Nielsen
Director, Utah Division of Oil, Gas and Mining
Three Triad Center
Suite 350
Salt Lake City, Utah 84180

SUBJECT: Utah Copper Division Mining and Reclamation Plan Amendment

Dear Ms. Nielsen:

Enclosed for your review is Kennecott's proposed amendment to our existing Mining and Reclamation Plan for Utah Copper Division. This amendment reflects the changes which will occur in our mining operation as a result of our recently announced modernization plans. Kennecott's existing Mining and Reclamation Plan identifies 23,000 acres of property to be utilized for mining and processing activities. The modernization amendment identifies an additional 350 acres, or 1.5% of the currently approved acreage, which will be utilized for ore transfer and ore processing facilities. There will be no changes in the areas used for mining, mine waste disposal, excess mine water disposal, tailings disposal and excess process water disposal.

Detailed information about the modernization project has been previously submitted to the Division. Since the submission, the scope of the project has been altered. The current scope includes crushing the ore at the pit in one movable crusher, conveying the ore to a new grinding plant located approximately one mile north of Copperton, grinding the ore in the new plant and transporting the ore via a slurry pipeline to the Magna and Arthur plants for additional processing through the existing facilities. A general process flow diagram is attached, along with an updated grinding plant site plan. The conveyor routing and slurry pipeline routing are unchanged from our previous submission.

Also enclosed is the additional information listed below which was requested by the Division's staff:

- Final Geotechnical Investigation Report, Volume I
- Final Geotechnical Investigation Report, Volume II
- Flotation Feed System Pipeline Plan with Pipeline Crossings

Kennecott's schedule of construction calls for site grading to begin at the grinding plant location in January, 1986. Excavation for foundation construction is scheduled for March 1986. This tight schedule is necessary to meet a September 1988 start-up date for the modernized facilities. We appreciate your prompt attention to this plan amendment. Mr. Al Trbovich (322-8371) is available to your staff to expedite the resolution of any questions or concerns the Division may have.

Very truly yours,

R. A. Malone

/mf
Enclosure

cc: L. K. Jacobsen, w/encl.
S. D. Taylor, w/encl.
A. M. Trbovich, w/encl.
C. K. Vance, w/encl.

AMENDMENT TO THE KENNECOTT UTAH COPPER DIVISION
MINING AND RECLAMATION PLAN

Preamble - There are no changes to the Preamble.

A. Applicant - The applicant is Kennecott Corporation, Utah Copper Division.

B. Type of Operation - The operation includes mining and processing for mineral extraction. Detail about the new mining and processing facilities is included in the previously submitted documents:

- o Project Overview and Environmental Considerations - Bingham Canyon Mine Modernization.
- o Project Overview and Environmental Considerations - Copperton Concentrator.
- o Project Overview and Water Management Plan for UCD Concentrator Modernization Project.

A more general discussion of the changes in the seven areas examined in our approved Plan is provided below:

1. Mine Area - The mine area from which overburden and ore is removed will not change and will continue to involve 3,100 acres.

   The mining sequence of drilling, blasting, loading by shovel, and haulage by truck will remain unchanged. Railroad haulage will no longer be used for ore or waste. Ore will be hauled by truck to an in-pit movable crusher. After crushing, the ore will be conveyed out of the pit to a new grinding facility located approximately one mile north of Copperton. Waste will be hauled by truck to the existing waste dumps.

   The modernization and other technological advances, such as innovative dewatering techniques, will allow maintenance of stable pit slopes as a function of specific rock type and moisture conditions in the various sections of the mine. At the conclusion of mining, pit sides will be stabilized at a slope of 30° to 50° from horizontal as a function of location in the mine.

2. Mine Waste Disposal Area - There will be no changes in the mine waste disposal area except that all waste will be hauled by truck.

3. Excess Mine Water Disposal Area - There will be no changes in the excess mine water disposal area as a result of modernization. Kennecott is conducting an extensive surface water study. The results of this study may change water usage practice. Kennecott is also conducting a detailed five-year study relevant to this area in cooperation with the State of Utah and Salt Lake County. Any recommendations for amendment of this area will be forthcoming after the study is completed.

4. Ore Transfer--Mine to Process Area - Ore will no longer be transported directly to the existing concentrators near Magna. Instead, the ore will be conveyed to a grinding plant located one mile north of Copperton. Approximately 37 acres of right-of-way between the mine and grinding plant will be disturbed by the construction of the conveyor. After construction is completed, the right-of-way will be replanted with a mixture of grass seeds. When the conveyor is no longer needed for mining or other activities, the surface structures will be removed. The area will then be returned to the farming and pasture usage currently ongoing on the property.

   The existing railroad between the mine and the facilities near Magna will be maintained and will be used for the transport of precipitate copper and general freight.

5. Ore Processing Facilities Area - Ore will be received via conveyor at a coarse ore stockpile located at a new ore grinding plant north of Copperton. Ore will be reclaimed from beneath the pile and will be ground in semi-autogenous (SAG) mills and ball mills. The ground ore will be gravity slurried, via pipeline, to the existing concentrators for additional processing through the existing facilities.

   The grinding plant will be located on a 100-acre site currently under cultivation for wheat. Following construction, the disturbed but undeveloped areas will be replanted. When the grinding plant is no longer needed for mining or other activities, the surface structures will be removed. The area will then be returned to agriculture or will be available for other types of development.

   The pipeline corridor will pass through areas used for wheat cultivation, pasturage, railroad right-of-way, manufacturing, and mining. Approximately 210 acres of the corridor will be on land previously undeveloped for mining or manufacturing purposes. After construction is completed, the disturbed areas within the pipeline right-of-way will be replanted with a mixture of grass seeds. When the slurry pipeline is no longer needed for mining or other activities, the surface structures will be removed. The area will be returned to agriculture or will be available for other types of development.

6. Tailings Disposal Area - There will be no changes in the tailings disposal area. The existing 6,000-acre tailings pond near Magna will continue in use.

7. Excess Process Water Disposal Area - There will be no changes in the excess process water disposal area. The existing facilities located on approximately 1,000 acres of land around the tailings disposal area will continue in use. Any excess water is discharged under the provisions of NPDES Permit UT-0000051. The discharge criteria may be modified in the future as a result of the surface water study cited in Section 3.

UCD CONCENTRATOR MODERNIZATION PROJECT

JOB NO. 17594

SCOPE SUMMARY

The new Copperton grinding facility will be designed to process a nominal 77,000 dry st/d of ore, to produce a 30 percent solids flotation feed slurry which will be transported by gravity pipeline to the existing Magna and Arthur concentrator flotation circuits.

The Project includes the following facilities:

- Coarse ore stockpile "A frame" structure supporting the ore feed and stockpile shuttle conveyors. The total stockpile capacity will be 348,000 st.

- Coarse ore reclaim system. Three tunnels each with four apron feeders, and three 54 in. conveyors will feed ore to three grinding lines. The coarse ore stockpile live capacity will be 45,000 st.

- Grinding. The facility will include three lines of grinding equipment. Each line will include a semi-autogenous mill, two ball mills, cyclones, screens, sumps, pumps and other related material handling equipment. The grinding process equipment will be housed in a grinding building with overhead cranes. The building will contain electrical and control rooms, computer room, instrument and electrical repair rooms and offices, lunch room, sanitary facilities, and sample preparation area.

- Slurry (flotation feed) pipeline system. Gravity 48 in. slurry pipeline to splitter box near Magna, feeding a 42 in. Magna branch and a 36 in. Arthur branch.

  Approximate lengths - Copperton to Splitter - 48 in. - 68,000 ft
  Splitter to Magna - 42 in. - 2,200 ft
  Splitter to Arthur tie - 36 in. - 3,000 ft

  System includes pipe bridges across Barney's Wash and railroad tracks and approximately 32 drop boxes.

- Process Water Pipeline System. Pumping and pipeline system from Magna reservoir to a new Copperton reservoir, consisting of pump Station 3A near Magna, Booster Pump Station 3B and a 62,000 ft long, 48 in. pipeline. Each pump station will have seven 6,400 gpm pumps (six operation + one spare), an electrical substation, and a feeder from the existing Kennecott 44 kv transmission lines.

- Common pipeline corridor for the slurry (flotation feed) and process water pipelines. The corridor width will vary from 25 to 45 ft and be 65,000 ft long.

- Fresh water pipeline system. Pump station and 16,000 ft of 16 in. pipeline from the Salt Lake County Water Conservancy tank on Road South 10,200 ft to the new Copperton grinding facility. The pump station will have 3 - 1,500 gpm pumps (two operating + one spare), and an electrical substation and tie to an existing nearby UP&L overhead 44kv transmission line.

- Lime Plant. Plant will include two lime silos, a milk of lime slurry preparation plant and two slurry holding tanks. A burner oil reagent storage tank and distribution system will be included next to the lime plant facility.

- Change and Guard House. The change house will contain lockers, showers and toilets for the work force. It will be a single story facility.

- Miscellaneous.

    - Equipment garage, eight bay, steel frame building, 7,200 sf.

    - Oxygen - acetylene bldg., 800 sf steel frame building with loading dock on one side.

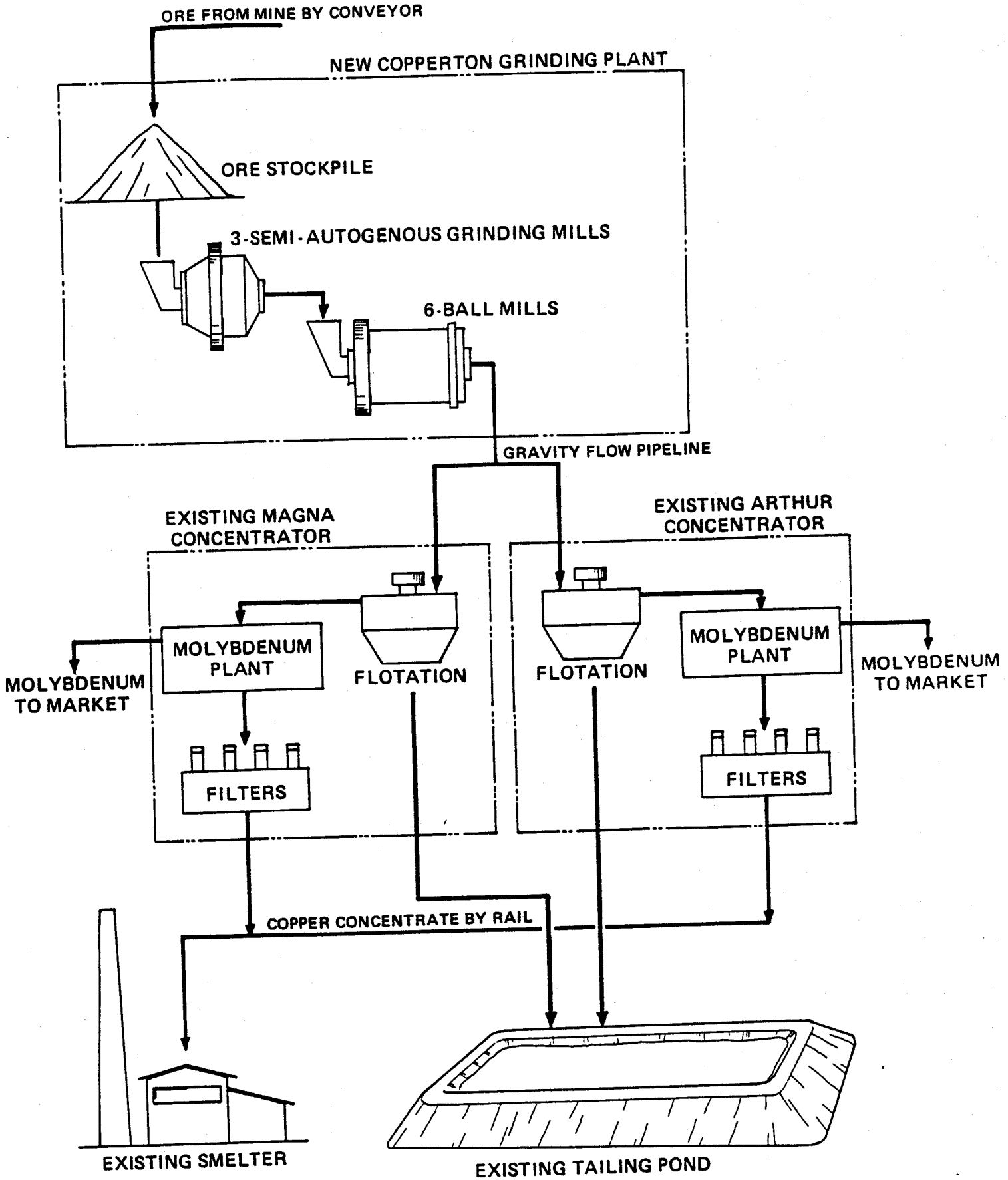
    - Truck Scale - 75 ton capacity.

- Site development and utilities for new Copperton site. Includes grading, drainage, three retention ponds, a 7.5 million gallon process water reservoir, fresh water tank; and process and utilities piping. Space will be provided for future addition of flotation, molybdenum plant and tailings thickeners.

- Yard Electrical - 13.8kv plant substation (adjacent to UP&L 138kv substation); plant feeders, yard lighting, grounding yard distribution, ductbanks, and telemetering to offsite facilities.

- Plant Roads A 1.7 mile main access road, plus in-plant roads and parking.

MODERNIZED UCD FLOW DIAGRAM



UCD CONCENTRATOR MODERNIZATION PROJECT
JOB 17594

"OUTLINE"
SUMMARIZED SCOPE CHANGES TO MODERNIZED FACILITY

1. Delete flotation at the new Copperton facility, utilize planned 48 in. tailings pipeline to transport slurry (flotation feed) to the existing Arthur and Magna concentrator flotation circuits, and delete tailings line downstream from the Arthur/Magna junction point.

2. Delete molybdenum sulfide separation plant.

3. Delete tailings thickeners.

4. Delete copper concentrate pipeline. Utilize existing rail shipment facilities from Arthur and Magna.

5. Delete tailings disposal to tailings pond. Use existing facilities at Arthur and Magna.

6. Increase the capacity of the process water system from 36 in. to 48 in. to return a larger volume of water to the new Copperton grinding facility. The process water reservoir capacity will be increased from 5.6 to 7.5 million gallons.

7. Delete the following ancillary facilities at the new Copperton facility:

   Office
   Laboratory
   Maintenance Shop

   Existing facilities will be utilized. The estimated plant work force will be reduced from 244 to 96.

8. Delete retention pond IV, which will no longer be required because tailings thickeners have been deleted. Pond III will be sized to retain one hour of flotation feed pipeline flow in addition to the 10 year, 24 hour storm runoff volume.

November 26, 1985
23A.0919

TABLE 5-1

Estimate of peak runoff for zones at plant site before developement

Zones	Area* (Acres)	Time of Concent. T_C	Runoff Coef. C	Rainfall Intensity(In/hr) I_{10}	I_{50}	I_{100}	Runoff Flow Rate (cfs) Q_{10}	Q_{50}	Q_{100}
I	26.1	15**	0.3	2.2	3.1	3.5	17	24	27
II	12.8	15	0.3	2.2	3.1	3.5	8	12	13
III	73.4	15	0.3	2.2	3.1	3.5	48	68	77

* Excludes 5.0 acres for the 7,500,000 gallon process water reservoir
** 15 minutes assumed as minimum

TABLE 5-2

Factors for zones at plant site after development

Zones	Area(acres) Total	Develop.	Undevel	Runoff Coefficient Develop. CD	Un-devel CU	Design C	24hr Rain Fall(inches) 10yr	50yr	100yr
I	26.1	13.8	12.3	0.80	0.3	0.56	2.6	3.4	3.8
II	12.8	11.7	1.1	0.85	0.3	0.80	2.6	3.4	3.8
III	73.4	36.3	37.1	0.80	0.3	0.55	2.6	3.4	3.8

TABLE 5-3

Estimate of peak runoff for zones at plant site after developement

Zones	Area (acre)	Time of Concent. Tc Min	Runoff coef. C	Rainfall Intensity(In/hr) I_{10}	I_{50}	I_{100}	Runoff Flow Rate(cfs) Q_{10}	Q_{50}	Q_{100}
I	26.1	15	0.56	2.2	3.1	3.5	32	45	51
II	12.8	15	0.80	2.2	3.1	3.5	23	32	36
III	73.4	15	0.55	2.2	3.1	3.5	89	125	141

TABLE 5-4

Estimate of excess discharge for events that exceed retention basin design of maximum measured duration storm with comparison to the undeveloped condition.

Zones	Retention Basin Vol* (Acre-ft)	Undeveloped 24-hr runoff (Acre-ft) 10 yr	50 yr	100 yr	Developed 24-hr runoff (Acre-ft) 10 yr	50 yr	100 yr	Runoff in excess of Retention Basin (Acre-ft) 50 yr	100 yr
I	3.2	1.7	2.2	2.5	3.2	4.1	4.6	0.9	1.4
II	2.2	0.8	1.1	1.2	2.2	2.9	3.2	0.7	1.0
III	8.7	4.8	6.2	7.0	8.7	11.4	12.8	2.7	4.1

*Excludes sedimentation allowance of 10 percent.
**Excluded 7.0 Acre-ft for emergency slurry (flotation feed) retention.